



SEQUENCE LISTING

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<120> Modified Oligonucleotides for Mismatch Discrimination

<130> 17682A-003610US

<140> US 09/724,959

<141> 2000-11-28

<150> US 09/054,830

<151> 1998-04-03

<150> US 09/054,832

<151> 1998-04-03

<150> US 09/431,385

<151> 1999-11-01

<150> US 60/186,046

<151> 2000-03-01

<150> US 09/640,953

<151> 2000-08-16

<160> 90

<170> PatentIn Ver. 2.1

<210> 1

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<223> Description of Artificial Sequence:minor groove  
binder (MGB)-modified FAM probe

<220>

<221> modified\_base

<222> (1)

<223> n = c modified by FAM

<220>

<221> modified\_base

<222> (18)

<223> n = t modified by a quencher (Q) and minor groove  
binder (MGB)

<400> 1

nttttgacct aacaaatn

<210> 2  
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<220>  
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binder (MGB)-modified FAM probe complement

<400> 2  
atgttaattt gttagggtcaa aagaaaaatc tttaga

36

<210> 3  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial  
Sequence:4-amino-3-(prop-1-ynyl)pyrazolo[3,4-d]pyrimidine  
(PPPA) analog of adenosine and pyrazolo[3,4-d]pyrimidine  
analog of guanosine (PPG) containing minor groove binder  
(MGB)-modified FAM probe complement

<400> 3  
tacaattaaa caatccagtt ttcttttttag aaatct

36

<210> 4  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial  
Sequence:4-amino-3-(prop-1-ynyl)pyrazolo[3,4-d]pyrimidine  
(PPPA) analog of adenosine and pyrazolo[3,4-d]pyrimidine  
analog of guanosine (PPG) containing minor groove binder  
(MGB)-modified FAM probe

<220>  
<221> modified\_base  
<222> (1)  
<223> n = pyrazolo[3,4-d]pyrimidine analog of guanosine  
modified by FAM

<220>  
<221> modified\_base  
<222> (5)..(6)  
<223> n = pyrazolo[3,4-d]pyrimidine analog of guanosine

<220>  
<221> modified\_base  
<222> (9)..(11)  
<223> n =  
4-amino-3-(prop-1-ynyl)pyrazolo[3,4-d]pyrimidine  
analog of adenosine

<220>  
<221> modified\_base  
<222> (15)  
<223> n = a modified by a quencher (Q) and minor groove  
binder (MGB)

<400> 4  
nttanntcnn nagan

15

<210> 5  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:TM-Invader  
probe substituted with six  
pyrazolo[3,4-d]pyrimidine analogs of guanosine

<220>  
<221> modified\_base  
<222> (2)..(7)  
<223> n = pyrazolo[3,4-d]pyrimidine analog of guanosine

<400> 5  
tnnnnnncct tggcggctac g

21

<210> 6  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:TM-Invader  
probe substituted with one  
pyrazolo[3,4-d]pyrimidine analog of guanosine

<220>  
<221> modified\_base  
<222> (5)  
<223> n = pyrazolo[3,4-d]pyrimidine analog of guanosine

<400> 6  
tgggnggcct tggcggctac g

21

<210> 7  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:TM-Invader  
probe

<400> 7  
tggggggcct tggcggctac g

21

<210> 8  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 1

<400> 8  
tcggcggcgt 10

<210> 9  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 2

<400> 9  
acagcggcgt 10

<210> 10  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 3

<400> 10  
acagcgacgt 10

<210> 11  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 4

<400> 11  
tcagtgacga 10

<210> 12  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 5

<400> 12  
tcagtgacaa

10

<210> 13  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 6

<400> 13  
tcaatgacag

10

<210> 14  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 7

<400> 14  
acaatgataa

10

<210> 15  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 8

<400> 15  
ccaataataa

10

<210> 16  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:complementary  
target 9

<400> 16  
gtaataataa

10

<210> 17  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:probe sequence  
 1

<400> 17  
 aaagttatgt ctacttacag aaa 23

<210> 18  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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 2

<400> 18  
 aaagctatgt ctacttacag aaa 23

<210> 19  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:probe sequence  
 3

<400> 19  
 aaagtcatgt ctacttacag aaa 23

<210> 20  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:probe sequence  
 4

<400> 20  
 aaagttgtgt ctacttacag aaa 23

<210> 21  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:probe sequence  
 5

<400> 21  
 aaagttacgt ctacttacag aaa 23

<210> 22  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
6

<400> 22  
aaagttatat ctacttacag aaa

23

<210> 23  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
7

<400> 23  
aaagttatgc ctacttacag aaa

23

<210> 24  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
8

<400> 24  
aaagttatgt ttacttacag aaa

23

<210> 25  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
9

<400> 25  
aaagttatgt ccacttacag aaa

23

<210> 26  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
10

<400> 26  
aaagttatgt ctgcttacag aaa

23

<210> 27  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
11

<400> 27  
aaagttatgt ctatttacag aaa

23

<210> 28  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
12

<400> 28  
aaagttatgt ctacctacag aaa

23

<210> 29  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
13

<400> 29  
aaagttatgt ctactcacag aaa

23

<210> 30  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence  
14

<400> 30  
aaagttatgt ctacttgcag aaa

23

<210> 31  
<211> 15  
<212> DNA  
<213> Artificial Sequence



<220>  
<223> Description of Artificial Sequence:target sequence  
1

<400> 31  
gtaagtagac ataac

15

<210> 32  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:target sequence  
2

<220>  
<221> modified\_base  
<222> (1)..(15)  
<223> n = 4-amino-3-(prop-1-ynyl)pyrazolo[3,4-d]pyrimidine  
analog of adenosine

<400> 32  
gtnnngtngnc ntnnc

15

<210> 33  
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<212> DNA  
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<220>  
<223> Description of Artificial Sequence:target sequence  
3

<220>  
<221> modified\_base  
<222> (15)  
<223> n = c modified by minor groove binder (MGB)

<400> 33  
gtaagtagac ataan

15

<210> 34  
<211> 15  
<212> DNA  
<213> Artificial Sequence

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<223> Description of Artificial Sequence:target sequence  
4

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<221> modified\_base  
<222> (1)..(14)  
<223> n = 4-amino-3-(prop-1-ynyl)pyrazolo[3,4-d]pyrimidine  
analog of adenosine

<220>  
 <221> modified\_base  
 <222> (15)  
 <223> n = c modified by minor groove binder (MGB)  
  
 <400> 34  
 gtngtngnc ntann  
 15  
  
 <210> 35  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:duplex  
 complement match  
  
 <400> 35  
 agctgtgact  
 10  
  
 <210> 36  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:duplex  
 complement 1  
  
 <400> 36  
 agctgtgact  
 10  
  
 <210> 37  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:duplex  
 complement 2  
  
 <400> 37  
 agcgtgact  
 10  
  
 <210> 38  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:duplex  
 complement 3  
  
 <400> 38  
 agccgtgact  
 10

<210> 39  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 4

<400> 39  
agcagagact

10

<210> 40  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 5

<400> 40  
agcagggact

10

<210> 41  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 6

<400> 41  
agcagcgact

10

<210> 42  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 7

<400> 42  
agcaatgact

10

<210> 43  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 8

<400> 43  
agcattgact

10

<210> 44  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 9

<400> 44  
agcactgact

10

<210> 45  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement match

<400> 45  
aataataacc

10

<210> 46  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 10

<400> 46  
aattataacc

10

<210> 47  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:duplex  
complement 11

<400> 47  
aatgataacc

10

<210> 48  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
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         complement 12  
  
 <400> 48  
 aatcataacc 10

<210> 49  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:duplex  
         complement 13  
  
 <400> 49  
 aataaaaacc 10

<210> 50  
 <211> 10  
 <212> DNA  
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<220>  
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         complement 14  
  
 <400> 50  
 aataagaacc 10

<210> 51  
 <211> 10  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:duplex  
         complement 15  
  
 <400> 51  
 aataacaacc 10

<210> 52  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:primer  
         extension template  
  
 <400> 52  
 aaccactctg tccta 15

<210> 53  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 53  
ctgtaagtag atataac 17

<210> 54  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
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<400> 54  
ggcaagatat atag 14

<210> 55  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 55  
gtgacgcaga ttcc 14

<210> 56  
<211> 15  
<212> DNA  
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gtaagtagac ataac 15

<210> 57  
<211> 14  
<212> DNA  
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<220>  
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<400> 57  
cagggagctt tgga 14

<210> 58  
<211> 14  
<212> DNA  
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<220>  
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<400> 58  
cactcgtgaa gctg 14

<210> 59  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 59  
gtaagtaggc ataac 15

<210> 60  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 60  
ccggatgtag gatc 14

<210> 61  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 61  
gattacctgg attt 14

<210> 62  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 62  
ccgtcaatgg tcac 14

<210> 63  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 63  
cagcacgtag cc 12

<210> 64  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 64  
cggctacgtg ctgg 14

<210> 65  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 65  
cggctacatg ctgg 14

<210> 66  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 66  
ctaaatctgc cg 12

<210> 67  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 67  
tctggatgat gggca 15



<210> 68  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 68  
 gttcatgggt gtaat 15

<210> 69  
 <211> 14  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
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 cggaggtagg atca 14

<210> 70  
 <211> 13  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 70  
 ccacccgcct cag 13

<210> 71  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 71  
 cacaggagtg gttgg 15

<210> 72  
 <211> 14  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 72  
 cggaccagtg cgtg 14

<210> 73  
 <211> 14  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 73  
 tcggaccagt gcgt 14

<210> 74  
 <211> 14  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 74  
 aacgggggtac gata 14

<210> 75  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 75  
 cagttgagat tctaagac 18

<210> 76  
 <211> 12  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 76  
 aggggcgtct tg 12

<210> 77  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence:probe sequence  
  
 <400> 77  
 gtaagtaggc atagc 15

<210> 78  
<211> 13  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 78  
tgcccagccc cag

13

<210> 79  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 79  
ccaacactcg tgaa

14

<210> 80  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 80  
gtaagtagac acagc

15

<210> 81  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 81  
tcggaccagt gc

12

<210> 82  
<211> 13  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 82  
cgatcacgct ggc

13

<210> 83  
<211> 13  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 83  
gtcctggggg tgg

13

<210> 84  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 84  
gtaagtaggt gtagc

15

<210> 85  
<211> 17  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 85  
ggttgtacgg gttcacg

17

<210> 86  
<211> 14  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 86  
ggaccagtgc gtga

14

<210> 87  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 87  
gtaagtagac gcagc

15

<210> 88  
<211> 15  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 88  
gtaagtaggc gcagc

15

<210> 89  
<211> 15  
<212> DNA  
<213> Artificial Sequence

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<400> 89  
gtaagtaggc gcggc

15

<210> 90  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:probe sequence

<400> 90  
ggttcccag cg

12